

# SERVICE MANUAL

MODEL TD-862B

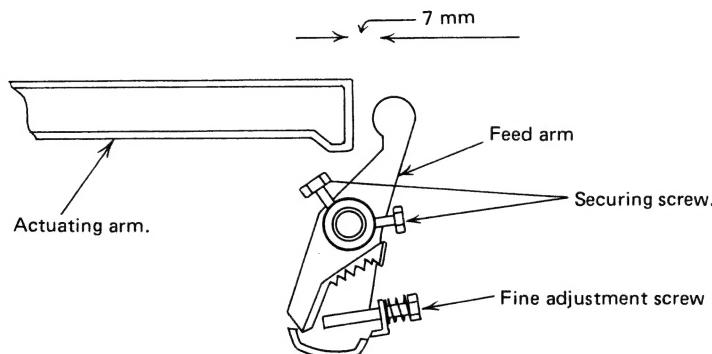


**TENSAI**  
INTERNATIONAL



## 1. Return Adjustment

- A) When deviation is slight.
  - Turn a fine adjustment screw to adjust the push amount of an actuating arm.
  - a) To retard the timing of return, turn the fine adjustment screw to clockwise direction.
  - b) To advance the timing, turn the fine adjustment screw to counter clockwise.
- B) When deviation is large.
  - a) Set the fine adjustment screw at the middle position.
  - b) Loosen securing screws, adjust a gap between the actuating arm and the feed arm to about 7 mm. and tighten the screws temporarily.
  - c) Turn the fine adjustment screw, and proceed with the same adjustment as A) a) or b) above.
  - d) Tighten the securing screws firmly.

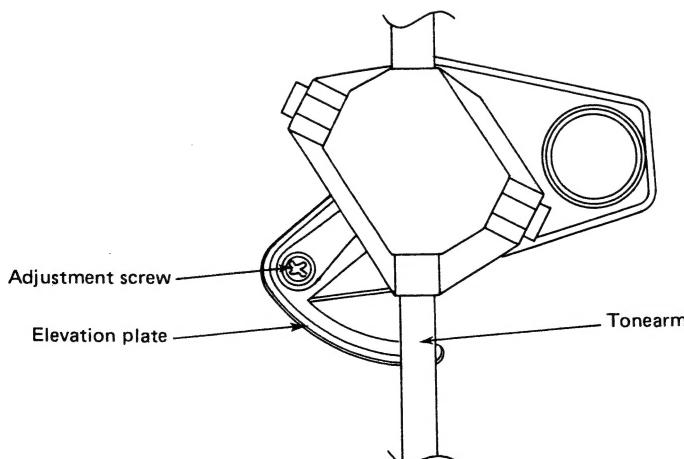


## 2. Tonearm raising and lowering adjustment during the return operation

It is normal that the raised tonearm directs somewhat upward in automatic return operation after playing a record. When the tonearm, however, raises or lowers remarkably in the automatic return operation, adjust the tonearm in the following manner.

- A) Free the tonearm from an tonearm rest, and place it on the top of an elevation plate. Adjust a elevation plate adjustment screw so that the gap between the record face and stylus tip becomes about 6 mm, when a main gear rotates by about  $45^\circ$ .
  - a) To raise the stylus tip.  
Turn the adjustment screw clockwise.
  - b) To lower the stylus tip.  
Turn the adjustment screw counter clockwise.
- B) Turn the main gear clockwise to return the tonearm to its original position.
- C) If the stylus tip is adjusted too high, it may not reach to record face and record can not be played.  
The optimum stylus tip height is 4 – 12 mm.

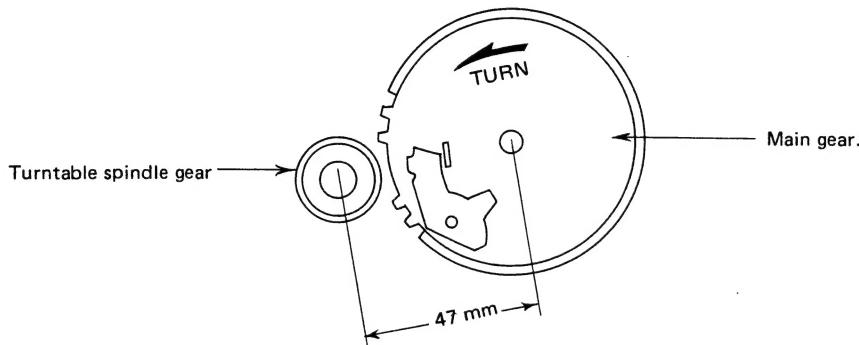
Note: When a cartridge is replaced, adjust the stylus tip height in return operation in the same manner.



### 3. Motor replacement.

- A) Reverse the record player to remove the bottom cover.
- B) Remove lead wires of a motor control circuit board.  
Lead wires connected to pin No. 1-8.
- C) Loosen the motor securing screws on the top of the record player.
- D) Remove the screws securing the motor control circuit.  
Reverse the order of the procedures for installing the motor.
  - \* Pay due attention to the following items to install the motor.

- a) Install the motor so that the distance between the center of main gear and the center of turntable spindle gear becomes 47 mm.
- b) Install the motor so that the turntable spindle gear is positioned in the center of the notch of the main gear.

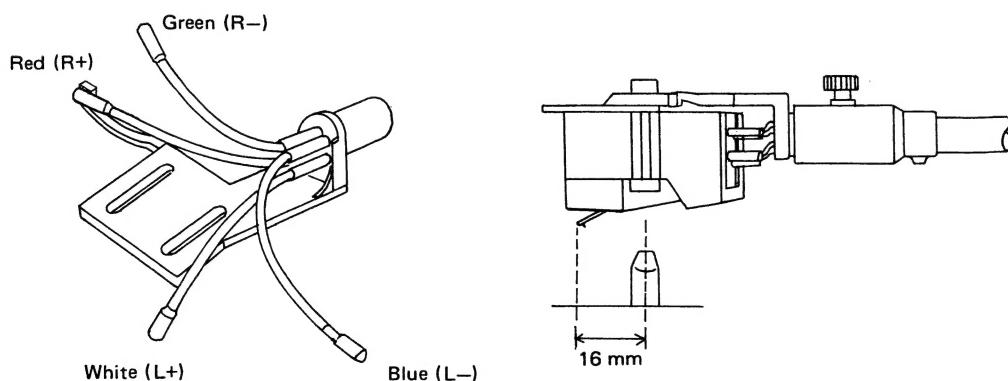


### 4. Tonearm replacement.

- A) Reverse the record player to remove the bottom cover.
- B) Remove lead wires (red, green, black, black, blue and white) connected to 5P terminal strip with a soldering iron.
- C) Loosen two securing screws of the feed arm to remove it from a tonearm shaft.
- D) Loosen M 10 nut retaining a tonearm from the rear side of the record player to remove the tonearm.  
Reverse the order of the above procedure to install the tonearm.  
\* After replacing the tonearm, make the adjustments described in 1. and 2.

### 5. Cartridge replacement.

To replace the cartridge, pay due attention to the wiring in the head shell shown in the drawing below. Connect the lead wires of head shell to the same marked pins of the cartridge. (R+) (R-) (L+) and (L-). Since the overhang of this set is 16 mm, determine the position of the cartridge with reference to the drawing below.

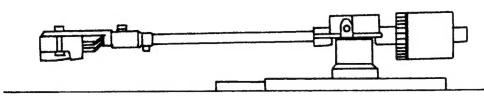


## 6. Main weight replacement and stylus pressure adjustment.

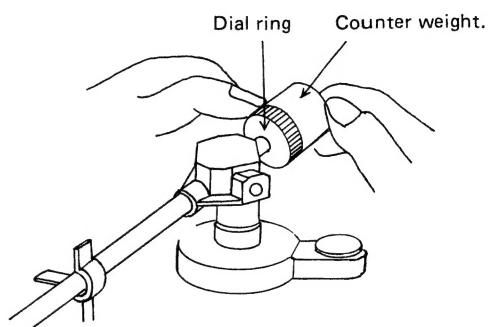
- A) Turn the main weight clockwise to remove it.
- B) Mount a new weight to be replaced by turning it counter clockwise.
- C) Set Anti-skate dial to "0" and set a cueing lever to "DOWN".
- D) Move the counter weight forward or backward by turning it so that the tonearm becomes horizontal as shown in the drawing.
- E) Pay due attention not to move the counter weight, rotate only the counter weight dial ring so that the dial "0" lines up with the white line marked on the tonearm.
- F) Hold the counter weight and turn it counter clockwise so that the specified stylus force of the cartridge agreed to the figures on the counter dial ring.



The weight side is too heavy.

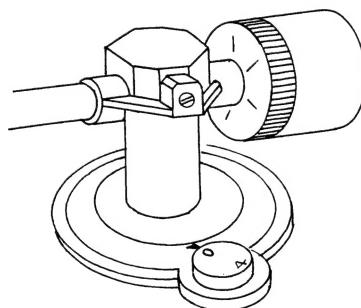


The head shell side is too heavy.



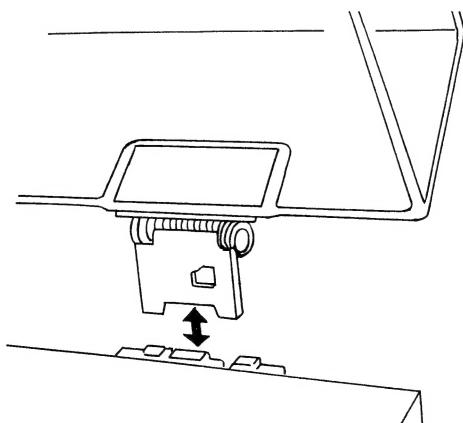
## 7. Anti-skate adjustment.

Set anti-skate to the same figure as the stylus force according to the procedure of item 6.



## 8. Dust cover replacement.

To replace the dust cover, open the old dust cover, hold an adequate part near the hinge, pull it upward to remove it, and push a new one down.



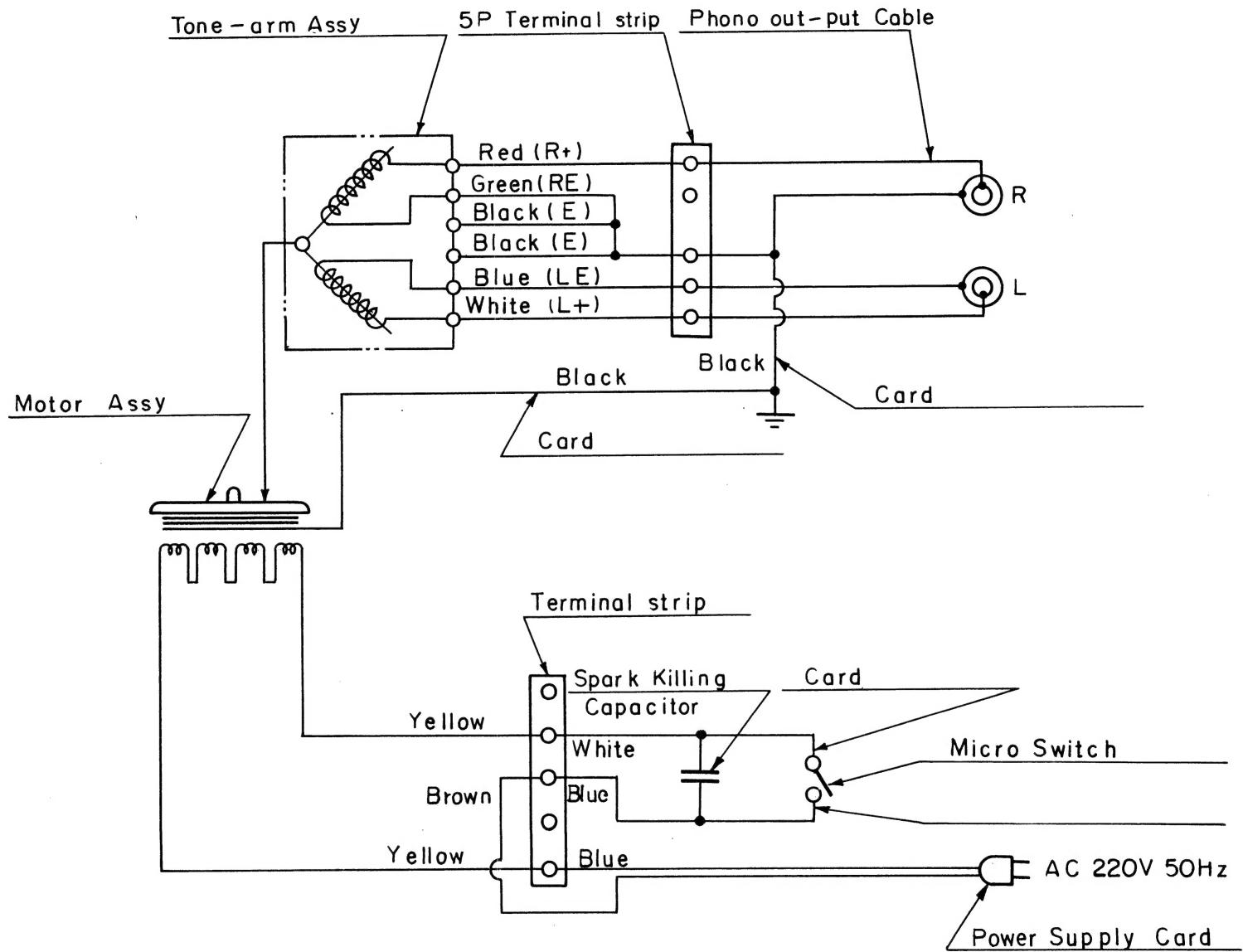
## TROUBLE SHOOTING

| Sympton  | Cause  | Repair   |
|--|--|--|
| When the tone-arm is placed on a record face, the turntable does not rotate.         | 1. No current flows because of poor contact of the micro switch.<br>2. Lead wire disconnection.<br>3. Blown fuse.  | 1. Replace the old micro switch with a new one.<br>2. Check wiring continuity.<br>3. After checking uncorrect wiring, replace the blown fuse with a new one.   |
| When the tonearm returns on the Arm rest, the turntable does not stop it's rotation. | 1. Too wide gap between the micro switch and the feed arm.<br>2. Uncorrect wiring of the micro-switch  | 1. Adjust the gap to 0.8 – 1.2 mm.<br>2. Modify the wiring according to the wiring diagram.  |
| When the REJ button is depressed, the tonearm does not return.                       | 1. No operation of the actuating arm.<br>2. Improper mesh between the main gear and the turntable spindle gear.  | 1. Check the interlocking transmission mechanism of the REJ button, REJ spring and REJ lever.<br>2. a. Check the gear gap.<br>b. Check if the turntable spindle gear is positioned in the center of the notch of the main gear.<br>c. Check if the teeth of the turntable spindle gear are worn to round shape.  |
| When the tonearm returns during playing a record.                                    | 1. Inclined record player with its left side down.<br>2. Deviated feed arm (The feed arm deviated toward the center of the turntable)                          | 1. Place the record player horizontally.<br>2. Adjust the position of the feed arm properly.   |
| When the stylus stays in the same groove.  | 1. Improper stylus force (Too light stylus force)<br>2. Caught tonearm lead wires.<br>3. Foreign matter between the clutch plate and the clutch guide.         | 1. Adjust stylus force.<br>2. Arrange the lead wires properly.<br>3. Remove the foreign matter.  |
| When record playing is over. The tonearm does not return.                            | Deviated position of the feed arm (The feed arm deviates toward the direction opposite from the center of the turntable spindle)                               | Adjust the position of the feed arm.   |
| When large impact sound is heard on the return of the tonearm.                       | 1. Improper mesh between the turntable gear and the main gear.<br><br>2. Improper fly-out of the clutch plate or deformed engagement part of the clutch plate. | 1. a. Check a gap between the turntable spindle gear and the main gear.<br>b. Check the shape of first meshed teeth of the turntable spindle gear and the main gear. (If it is deformed, replace the old turntable spindle gear or the main gear or both with new one(s).)<br><br>2. a. Check if the clutch plate flies out until it strikes the side face of the turntable spindle gear. If not so, check and remove foreign matter between the clutch plate and the clutch guide or between the operation arm and the operation base.<br>b. Check the shape of the meshed teeth of the turntable spindle gear of the clutch plate. |

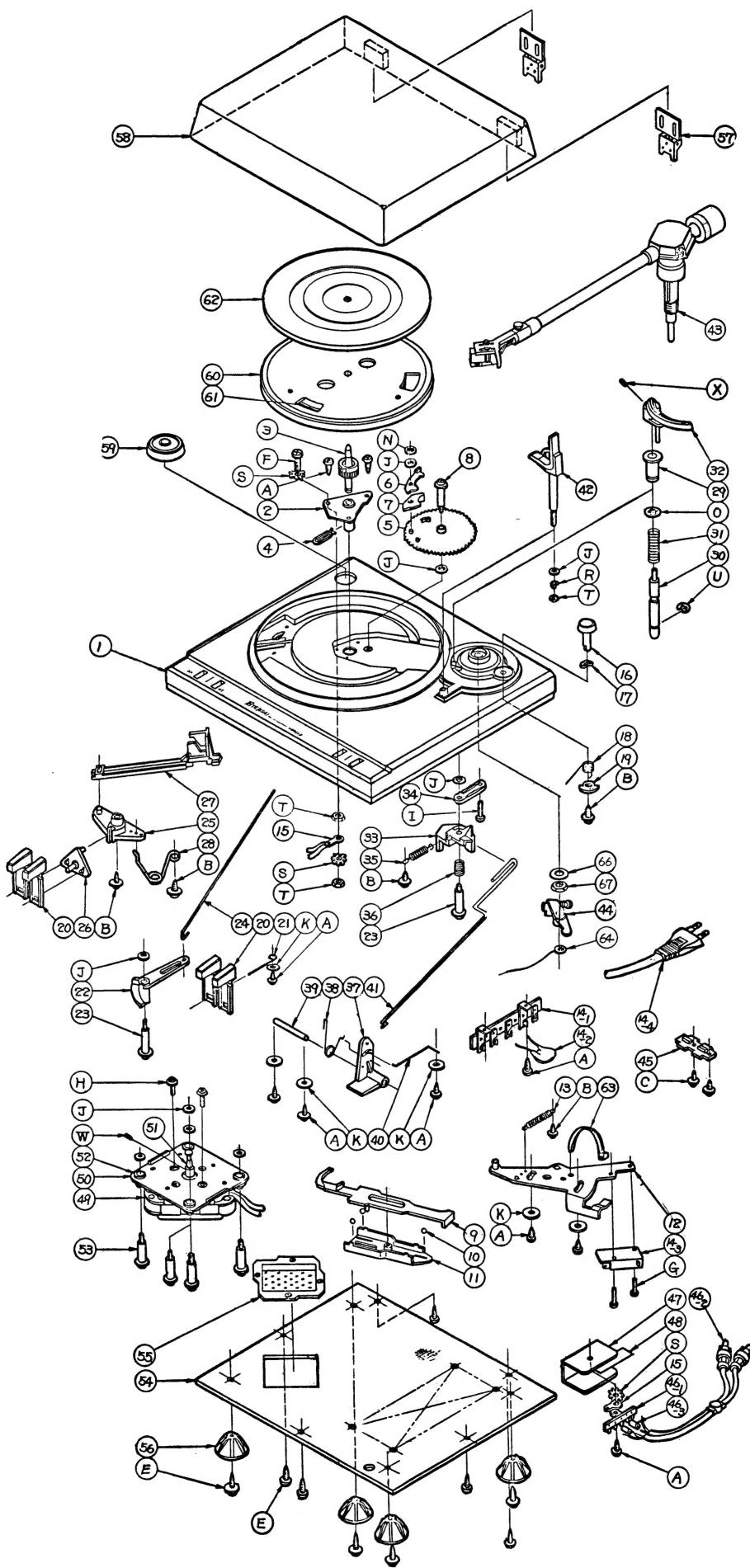
| Sympton   | Cause  | Repair  |
|---|--|---|
| When the tonearm returns, the stylus scratches a record face.     | 1. Excessively pitched up records.<br>2. Improperly adjusted stylus height.  | 1. Remove all record.<br>Note: Place only one record on the turntable.<br>2. Adjust the stylus height.  |
| When electrical output does not come out from the record player.  | 1. Improperly soldered tonearm lead wires to the 5P terminal strip.<br>2. Defective transmission path.<br>3. Defective cartridge.                              | 1. Check the soldered parts concerned.<br>2. Check the continuity of the transmission path.<br>3. Replace the old cartridge with a new one.       |
| When reproduced sound of one channel is distorted.                | 1. Too light stylus force.<br>2. Obliquely installed cartridge.<br>3. Too effective anti-skate.  | 1. Adjust the stylus force.<br>2. Adjust the installation of the cartridge.<br>3. Set the anti-skate to an adequate position.                     |
| When the stylus drops suddenly on the record face in cueing down. | 1. No installation of the elevation spring.<br>2. Insufficient silicon oil (Use a product for $10 \times 10^4$ CS. (cm/stroke)).<br>3. Too heavy stylus force. | 1. Insert the elevation spring.<br>2. Supplement silicon oil (Use a product for $10 \times 10^4$ CS. (cm/stroke)).<br>3. Adjust the stylus force. |

## SPECIFICATIONS

|                      |   |
|----------------------|---|
| Type                 | Belt drive auto-return system with cueing.  |
| Turntable speeds     | 33 1/3 rpm and 45 rpm   |
| Motor                | Four pole synchronous motor   |
| Turntable platter    | 30 cm (12 inches), Aluminium Diecast  |
| Tonearm              | Static balanced "J" shape tonearm with direct readout stylus pressure and anti-skating control. |
| Effective arm length | 210 mm  |
| Wow and Flutter      | 0.08% (JIS WRMS)  |
| Signal/Noise Ratio   | 45 dB   |
| Power Requirements   | AC 220V/50Hz  |
| Dimensions           | 430(W) x 375(D) x 128.5(H) mm   |
| Power consumption    | 10W   |
| Weight               | (net) 4.3kg   |
| Weight with packing  | (Gross) 6.0kg   |
| Stylus pressure      | 2.5g ± 0.5g   |



## **EXPLODED VIEW**



**PARTS LIST MODEL TD-862B**

| Drawing No. | Description             | Parts No. | Qty | Drawing No.  | Description          | Parts No.       | Qty |
|-------------|-------------------------|-----------|-----|--------------|----------------------|-----------------|-----|
| 1           | Cabinet board           | 852271    | 1   | 44           | Feed arm ass'y       | 890990-3        | 1   |
| 2           | Turntable bearing ass'y | 700514-1  | 1   | 45           | Cord holder          | 898550-1        | 1   |
| 3           | Turntable spindle ass'y | 701205    | 1   | 46           | 5 lug terminal ass'y | 896531-1        | 1   |
| 4           | Stopper                 | E-271110  | 1   | -1           | 5 lug terminal strip | 890979          | 1   |
| 5           | R. gear ass'y           | 895248    | 1   | -2           | Phono out-put cable  | 890496-1        | 1   |
| 6           | Cluch plate             | 894901    | 1   | -3           | Vanished tube        | 3φx14           | 2   |
| 7           | Cluch guide             | 894902    | 1   | 47           | Screen plate         | 890959-1        | 1   |
| 8           | Screw                   | 899724    | 1   | 48           | UL tape              | NITTO #228      |     |
| 9           | Actuating arm           | 870933-1  | 1   | 49           | Motor IM-S275-12C-15 |                 | 1   |
| 10          | Steel ball              | 4φ        | 3   | 50           | Motor mounting plate | 896147-1        | 1   |
| 11          | Actuating base          | 870932-1  | 1   | 51           | Pulley               | 703740-2        | 1   |
| 12          | Switch plate            | 896487    | 1   | 52           | Rubber cushion       | 702230          | 4   |
| 13          | Spring                  | 899398    | 1   | 53           | Screw                | 893057          | 4   |
| 14          | Switch ass'y            | 872795    | 1   | 54           | Bottom board         | 872782          | 1   |
| -1          | Terminal strip          | 894228    | 1   | 55           | Motor cover          | 896447          | 1   |
| -2          | Spark killing capacitor | 899299    | 1   | 56           | Rubber food          | 892227          | 4   |
| -3          | Micro switch            | 870270    | 1   | 57           | Hinge ass'y          | 897766          | 2   |
| -4          | Power supply card       | 895617    | 1   | 58           | Dust cover           | 852171          | 1   |
| 15          | Earth ass'y             | 899726-2  | 1   | 59           | E.P. adaptor         | 890876          | 1   |
| -1          | Lug                     | 3φ        | 2   | 60           | Turntable platter    | 620076          | 1   |
| 16          | I.F.C. knob             | 910141    | 1   | 61           | Drive belt           | 700515-B        | 1   |
| 17          | Wave washer             | 897554    | 1   | 62           | Rubber mat           | 872692          | 1   |
| 18          | I.F.C. spring           | 898637-1  | 1   | 63           | Wire fastner         | 894408          | 1   |
| 19          | I.F.C. cam              | 897547    | 1   | 64           | Earth cord ass'y     | 898801          | 1   |
| 20          | Batton                  | 910134-1  | 4   | 43-1         | Tone-arm weight      |                 | 1   |
| 21          | Batton spring           | 910140    | 1   | -2           | Cartridge MC-9A      |                 | 1   |
| 22          | Reject lever            | 897818    | 1   | -3           | Head shell           |                 | 1   |
| 23          | Screw                   | 896758-3  | 2   | -4(67)Nut    |                      | M10             | 1   |
| 24          | Reject spring           | 910133    | 1   | -5(66)Washer |                      |                 | 1   |
| 25          | Speed change arm        | 898634    | 1   | A            | Screw                | BT + 3x8        | 6   |
| 26          | Speed change cam        | 898635    | 1   | B            | Screw                | TPT + 3x8       | 9   |
| 27          | Beld guide              | 898636    | 1   | C            | Screw                | TPT + 3x12      | 2   |
| 28          | Click spring            | 898807    | 1   | D            | Screw                | TPT + 3x8       | 4   |
| 29          | Elevation base          | 899710    | 1   | E            | Screw                | FMT + 4x16      | 5   |
| 30          | Elevation spindle       | 896882-3  | 1   | F            | Screw                | TP + 3x14       | 1   |
| 31          | Elevation spring        | E-832780  | 1   | G            | Screw                | M + 2.6x15      | 1   |
| 32          | Elevation plate         | 897816    | 1   | H            | Screw                | TP + 3x6        | 4   |
| 33          | Cueing cam (1)          | 899843    | 1   | I            | Screw                | CT + 3x16       | 1   |
| 34          | Cueing guide            | 899844    | 1   | J            | Washer               | FW3.2φx8φx0.5t  | 8   |
| 35          | Lever spring            | 891443    | 1   | K            | Washer               | FW3.2φx13φx0.8t | 5   |
| 36          | Spring                  | 895021-7  | 1   | N            | Washer               | CS-3            | 1   |
| 37          | Cueing cam (2)          | 910135    | 1   | O            | Washer               | CS-6            | 1   |
| 38          | Cam spring              | 910137    | 1   | R            | Washer               | SSW-3           | 1   |
| 39          | Cam shaft               | 910136    | 1   | S            | Washer               | TOW-3           | 3   |
| 40          | Cam pin                 | 910138    | 1   | T            | Nut                  | FLN-3           | 3   |
| 41          | Cueing lever            | 910139    | 1   | U            | Washer               | E-3             | 1   |
| 42          | Tone-arm rest ass'y     | 898806    | 1   | W            | Screw                | T - 2.6x2       | 1   |
| 43          | Tone-arm ass'y          | 851854-2  | 1   | X            | Screw                | T - 2.6x4       | 1   |